

Notice of Allowability

Application No.

10/817,315

Examiner

Hung H. Lam

Applicant(s)

TSURUOKA, TAKAO

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/02/04.
2. ☒ The allowed claim(s) is/are 1-35.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



LIN T C

SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with IAN VOLTEK on 09/18/07.
3. The application has been amended as follows:

The title of the Invention (Currently amended): IMAGE PICKUP SYSTEM AND IMAGING PROCESSING PROGRAM FOR PERFORMING CORRECTION ON CHROMA SIGNAL.

Claim 16 (Currently amended). A computer readable medium storing an An image processing program for causing a computer to function as:

color space converting means for converting a color signal of a primary color or a color signal of a complementary color to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;
correction coefficient calculating means for calculating a chroma correction coefficient to be used for performing correction on the chroma signal;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal from the color space converting means; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value and the chroma correction coefficient.

Claim 17. (Currently Amended) A computer readable medium storing an An image processing _ for causing a computer to function as:

color space converting means for converting color signal of a primary color or a color signal of a complementary color to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;
correction coefficient calculating means for calculating a hue correction coefficient to be used for correcting the hue signal with respect to the hue signal in a predetermined

range and for calculating a chroma correction coefficient to be used for correcting the chroma signal with respect to the hue signal in the predetermined range;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second

maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal corrected by using the hue correction coefficient; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value and the chroma correction coefficient.

Allowable Subject Matter

4. Claims 1-35 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Regarding claim 1 the prior art of record neither anticipates nor renders obvious, an image pickup system for tone converting and outputting a color signal of a primary color or a color signal of a complementary color from an image pickup apparatus, the system comprising:

a color space converting means for converting the color signal to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;

correction coefficient calculating means for calculating a chroma correction coefficient to be used for performing correction on the chroma signal;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second maximum chroma value in the color space with respect to the luminance signal

converted by the tone converting means and the hue signal from the color space converting means; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value and the chroma correction coefficient.

Regarding claim 2 the prior art of record neither anticipates nor renders obvious, an image pickup system for tone converting and outputting a color signal of a primary color or a color signal of a complementary color from an image pickup apparatus, the system comprising:

color space converting means for converting the color signal to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;

correction coefficient calculating means for calculating a hue correction coefficient to be used for correcting the hue signal with respect to the hue signal in a predetermined range and for calculating a chroma correction coefficient to be used for correcting the chroma signal with respect to the hue signal in the predetermined range;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal corrected by using the hue correction coefficient; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value and the chroma correction coefficient.

Regarding claim 3 the prior art of record neither anticipates nor renders obvious, an image pickup system for tone converting and outputting a color signal of a primary

Art Unit: 2622

color or a color signal of a complementary color from an image pickup apparatus, the system comprising:

color space converting means for converting the color signal to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;

first correction coefficient calculating means for calculating a first chroma correction coefficient to be used for performing correction on the chroma signal;

second correction coefficient calculating means for calculating a hue correction coefficient to be used for correcting the hue signal with respect to the hue signal in a predetermined range and for calculating a second chroma correction coefficient to be used for correcting the chroma signal with respect to the hue signal in the predetermined range;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal corrected by using the hue correction coefficient; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value,

the first chroma correction coefficient and the second chroma correction coefficient.

Regarding claim 16 the prior art of record neither anticipates nor renders obvious, a computer readable medium storing an image processing, for causing a computer to function as:

color space converting means for converting a color signal of a primary color or a color signal of a complementary color to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;

correction coefficient calculating means for calculating a chroma correction coefficient to be used for performing correction on the chroma signal;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal from the color space converting means; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value

and the chroma correction coefficient.

Regarding claim 17 the prior art of record neither anticipates nor renders obvious, a computer readable medium storing an image processing, for causing a computer to function as:

color space converting means for converting a color signal of a primary color or a color signal of a complementary color to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;

correction coefficient calculating means for calculating a hue correction coefficient to be used for correcting the hue signal with respect to the hue signal in a predetermined range and for calculating a chroma correction coefficient to be used for correcting the chroma signal with respect to the hue signal in the predetermined range;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting means and a second

maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal corrected by using the hue correction coefficient; and

chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value and the chroma correction coefficient.

Regarding claim 18 the prior art of record neither anticipates nor renders obvious, an image processing system for causing a computer to function as:

color space converting means for converting a color signal of a primary color or a color signal of a complementary color to signals in a color space having three signals including a luminance signal, a hue signal and a chroma signal;

tone converting means for performing tone conversion on the luminance signal;

first correction coefficient calculating means for calculating a first chroma correction coefficient to be used for performing correction on the chroma signal;

second correction coefficient calculating means for calculating a hue correction coefficient to be used for correcting the hue signal with respect to the hue signal in a predetermined range and for calculating a second chroma correction coefficient to be used for correcting the chroma signal with respect to the hue signal in the predetermined range;

maximum chroma calculating means for calculating a first maximum chroma value in the color space with respect to the luminance signal from the color space converting means and the hue signal from the color space converting

means And a second maximum chroma value in the color space with respect to the luminance signal converted by the tone converting means and the hue signal corrected by using the hue correction coefficient; and chroma correcting means for performing correction on the chroma signal based on the first maximum chroma value, the second maximum chroma value, the first chroma correction coefficient and the second chroma correction coefficient.

Regarding claims 4-5,7-12, 14-15, 19, 21, 23, 25, 27, 29, 31, 32, 34, 6, 13, 33, 35, 20, 22, 24, 26, 28, 30 the claims are allowed as being dependent of claims 1-3, respectively.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance." Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Yamshita (US-5,384,601) discloses a color adjustment apparatus for automatically changing color.

b) Takemoto (US-6,975,437) discloses a method and apparatus for color correction.

c) Mantell (US-5,748,785) discloses an inter-separation color image processing.

d) Takemoto (US-2003/0,058,349) discloses a color conversion circuit.

e) Sekine (US-5,434,683) discloses a color image editing apparatus.

f) Kim (US-2004/0,017,380) discloses an apparatus and method for color compensate.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LIN YE can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LIN YE
SUPERVISORY PATENT EXAMINER

HL
09/24/07